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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,908	08/11/2006	Keisuke Asaba	15722.0001	5727

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EXAMINER	
PHAM, LEDA T	
ART UNIT	PAPER NUMBER
2834	

MAIL DATE	DELIVERY MODE
02/13/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/556,908	ASABA ET AL.	
	Examiner	Art Unit	
	LEDA PHAM	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *n/a* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *05/03/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Preliminary Amendment

1. Preliminary Amendment filed on 02/01/06 has been entered and made of record in the file.

Claims 1-24 are presented for examination.

Drawings

2. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). Note that while applicant’s paragraph [0018] of the specification provides brief description of Figure 1A through Figure 9B, none has been provided.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The

disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because on line 3, it used phrase "comprising" which can be implied. Correction is required. See MPEP § 608.01(b).

Claim Objections

5. Claim 3-4, 6 are objected to because of the following informalities:

Line 2 of each claims 3 and 4, "the respective coil bodies" should be change to ---respective outer coil bodies---.

Line 4 of claim 6, there are two phrases "the respective outer coil bodies", one of them should be deleted.

Appropriate correction is required.

6. Claims 9 and 13 are objected to under 37 CFR 1.75 as being a substantial duplicate of claim 5. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

7. Claims 11 and 15 are objected to under 37 CFR 1.75 as being a substantial duplicate of claim 7. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

8. Claims 12 and 16 are objected to under 37 CFR 1.75 as being a substantial duplicate of claim 8. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-2, 17-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. In claim 1, it is indefinite because the claim language is unclear. How is the outer coil bodies would on peripheral side surface with "the inner coil group taken as a virtual disc while covering the inner coil group"? Does applicant meant that the outer coil bodies covering the peripheral side surface of the inner coil bodies? If this is the case, please re-write the claim language to clarify this claim features.

12. In claim 2, it is not clear how the peripheral side surface of inner coil group is made “externally flush” with the peripheral side surface of the outer coil group. The specification does not give any support of the term "externally flush" between the side surfaces of the inner coil group and the outer coil group. In light of the drawing, figure 3C, the peripheral side surface of the outer coil group does not cover the peripheral side

surface of the inner coil group. Therefore, for examination, examiner assumes "the peripheral side surface of inner coil group is made externally flush with the peripheral side surface of the outer coil group" meant the peripheral side surface of the outer coil group does not cover the peripheral side surface of the inner coil group, the outer coil group covered a portion of the inner coil group.

In claim 17-24, the "respective coil bodies" is unclear because there are two kind of coil bodies, the inner coil bodies and the outer coil bodies. Which one is recited? Applicant should be particularly point out the subject mater recited in the claim to make the claim clear for examining.

Claim Rejections - 35 USC § 102

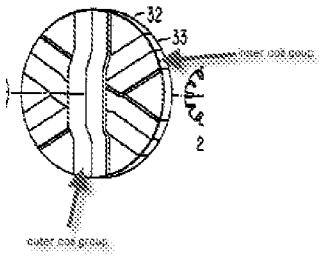
13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwasaki (U.S. Patent No. 4,712,034).

15. Regarding claim 1, Iwasaki teaches a DC motor having magnets (3, 4) as a main source for generating a magnetic flux and armature coils (6) as a main source for generating a torque and using either thereof as a rotor (fig 1), wherein the armature coil (6, fig 2, fig 5, fig 8) comprises an inner coil group formed by arranging, parallel with each other(figure 8, the inner coil group 33 is the third coil group in front view of the figure wounds around the armature plate 32, and figure 6 shown the winding 6 has the

top winding portion regarding to the top surface of the armature plate 15 is parallel with the bottom winding portion regarding to the bottom surface of the plate 15), a prescribed number of hollow inner coil bodies (6, fig 2) of a prescribed shape wound with a conductor of a prescribed number of turns on peripheral side surfaces of a virtual disc or a disc-shaped core (32, fig 8), and an outer coil group formed by arranging, parallel with each other (figure 8, the outer coil group 33 is the first coil group in front view of the figure wounds around the armature plate 32, and figure 6 shown the winding 6 has the top winding portion regarding to the top surface of the armature plate 15 is parallel with the bottom winding portion regarding to the bottom surface of the plate 15), a prescribed number of hollow outer coil bodies (6, fig 2) of a prescribed shape wound with a conductor of a prescribed number of turns on peripheral side surfaces with the inner coil group taken as a virtual disc while covering the inner coil group (the outer coil group cover the inner coil group at the center of the armature 32, see figure below, col 5, ln 4-15).



16. Regarding claim 2, Iwasaki teaches the peripheral side surface of the inner coil group is made externally flush with the peripheral side surface of the outer coil group (the peripheral side surface of the inner coil group is not cover by the peripheral side surface of the outer coil group, see figure above).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

18. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki in view of Ban et al. (U.S. Patent No. 4,197,475).

Regarding claims 3 and 4, Iwasaki teaches the respective inner coil bodies and the respective outer coil bodies are formed into a hollow and roughly trapezoidal or a hollow and arrowed shape (6, fig 2), each of the corresponding inner coil bodies is arranged at intervals of 120 degrees (fig 1). However, Iwasaki does not teach each of the corresponding outer coil bodies is shifted from each of the corresponding coil bodies by 60 degrees and arranged at intervals of 120 degrees.

Ban teaches a direct current motor with double layer armature windings (fig 5a-5b) having inner coil bodies (2-1, 2-3, 2-5) and the respective outer coil bodies (2-2, 2-4, and 2-6), each of the corresponding inner coil bodies is arranged at intervals of 120 degrees (fig 1) and each of the corresponding outer coil bodies is shifted from each of the corresponding coil bodies by 60 degrees and arranged at intervals of 120 degrees (col 4, ln 43-52) to reduce generation of sparks between the commutator segments, and reduce short-circuit.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange position of the inner coil group and the outer coil group as taught by Ban. Doing so would provide a DC motor with high in torque and efficiency.

19. Claims 5-6, 9-10, 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki in view of Asaba (U.S. Pub. No. 2004/0164638 A1).

20. Regarding claims 5, 9 -10, and 13-14, Iwasaki does not teach the DC motor including commutators adaptable to the respective inner coil bodies and the respective outer coil bodies and four brushes arranged at intervals of 90 degrees for the respective commutators. Asaba teaches the DC motor (fig 4) includes commutators (12) adaptable to the respective inner coil bodies and the respective outer coil bodies and two brushes (14) arranged at intervals of 90 degrees for the respective commutators. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the commutators and the brushes as taught by Asaba. Doing so would obtain greater rotating torque and high efficiency. Furthermore, Asaba teaches only two brushes arranged at interval of 90 degrees for the respective commutators instead of four brushes as recited in the present claim. It would have been obvious to one having ordinary skill in the art to include one or more brushes for the respective commutators, so that the current can be deliver from the commutators to the winding of the motor. The reason is it has been held that mere duplication of the

essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. vs. Bemis Co.*, 193 USPQ 8.

21. Regarding claim 6, Iwasaki teach the DC motor including commutators (12) adaptable to the respective inner coil bodies and the respective outer coil bodies and two brushes (14) arranged at intervals of 90 degrees for the respective commutators (fig 4).

22. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki in view of Ban (JP05-227716, hereinafter Ban-JP ref.).

Regarding claims 17-18, Iwasaki teaches the claimed invention, except for the added limitation of the respective coil bodies formed by star-connecting the respective inner coil bodies and the respective outer coil bodies. Ban-JP ref. teaches the DC motor (fug 3-4) includes commutators adaptable to respective coil bodies (3a, 3b, 3c, 6a, 6b, and 6c) formed by star-connecting the respective inner coil bodies and the respective outer coil bodies (fig 3) to prevent a spark discharge between a commutator and a brush. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the DC motor by using the star connection as taught by Ban-JP ref. in Iwasaki DC motor for preventing a spark discharge between a commutator and a brush.

23. Claims 7-8, 11-12, 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Iwasaki and Ban in view of Asaba.

Regarding claims 7-8, 11-12, and 15-16, Iwasaki does not teach the DC motor including commutators adaptable to the respective inner coil bodies and the respective outer coil bodies and four brushes arranged at intervals of 90 degrees for the respective commutators. Asaba teaches the DC motor (fig 4) includes commutators (12) adaptable to the respective inner coil bodies and the respective outer coil bodies and two brushes (14) arranged at intervals of 90 degrees for the respective commutators. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the commutators and the brushes as taught by Asaba. Doing so would obtain greater rotating torque and high efficiency. Furthermore, Asaba teaches only two brushes arranged at interval of 90 degrees for the respective commutators instead of four brushes as recited in the present claim. It would have been obvious to one having ordinary skill in the art to include one or more brushes for the respective commutators, so that the current can be deliver from the commutators to the winding of the motor. The reason is it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. vs. Bemis Co.*, 193 USPQ 8.

24. Claims 19 - 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Iwasaki and Ban in view of Ban-JP ref.

Regarding claim 20, the combination of Iwasaki and Ban teaches the claimed invention, except for the added limitation of the respective coil bodies formed by star-connecting the respective inner coil bodies and the respective outer coil bodies. Ban-JP

ref. teaches the DC motor (fug 3-4) includes commutators adaptable to respective coil bodies (3a, 3b, 3c, 6a, 6b, and 6c) formed by star-connecting the respective inner coil bodies and the respective outer coil bodies (fig 3) to prevent a spark discharge between a commutator and a brush. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the DC motor by using the star connection as taught by Ban-JP ref. in Iwasaki DC motor for preventing a spark discharge between a commutator and a brush.

25. Claims 21- 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Iwasaki and Asaba in view of Ban-JP ref.

Regarding claims 21-22, the combination of Iwasaki and Asaba teaches the claimed invention, except for the added limitation of the respective coil bodies formed by star-connecting the respective inner coil bodies and the respective outer coil bodies. Ban-JP ref. teaches the DC motor (fug 3-4) includes commutators adaptable to respective coil bodies (3a, 3b, 3c, 6a, 6b, and 6c) formed by star-connecting the respective inner coil bodies and the respective outer coil bodies (fig 3) to prevent a spark discharge between a commutator and a brush. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the DC motor by using the star connection as taught by Ban-JP ref. in Iwasaki DC motor for preventing a spark discharge between a commutator and a brush.

26. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Iwasaki, Ban, and Asaba in view of Ban-JP ref.

Regarding claims 23-24, the combination of Iwasaki, Ban and Asaba teaches the claimed invention, except for the added limitation of the respective coil bodies formed by star-connecting the respective inner coil bodies and the respective outer coil bodies. Ban-JP ref. teaches the DC motor (fug 3-4) includes commutators adaptable to respective coil bodies (3a, 3b, 3c, 6a, 6b, and 6c) formed by star-connecting the respective inner coil bodies and the respective outer coil bodies (fig 3) to prevent a spark discharge between a commutator and a brush. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the DC motor by using the star connection as taught by Ban-JP ref. in Iwasaki DC motor for preventing a spark discharge between a commutator and a brush.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEDA PHAM whose telephone number is 571-272-5806. The examiner can normally be reached on Normally M-f (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen P. Leung can be reached on 571-272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quyen P Leung/
Supervisory Patent Examiner, Art Unit 2834

/LEDA PHAM/
Examiner, Art Unit 2834